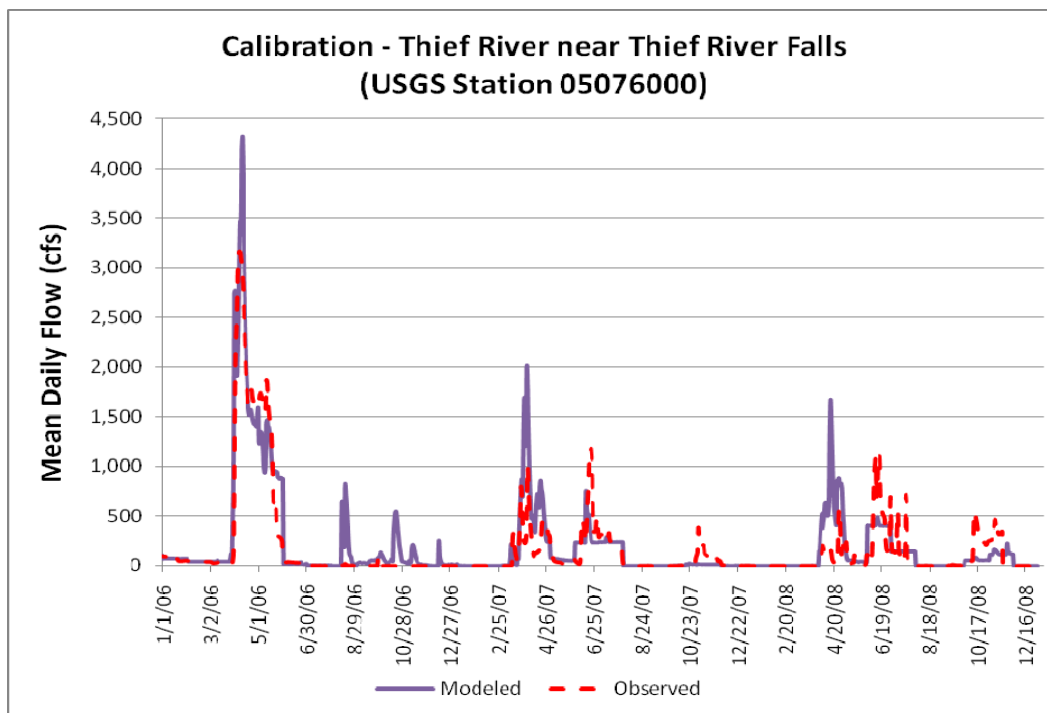


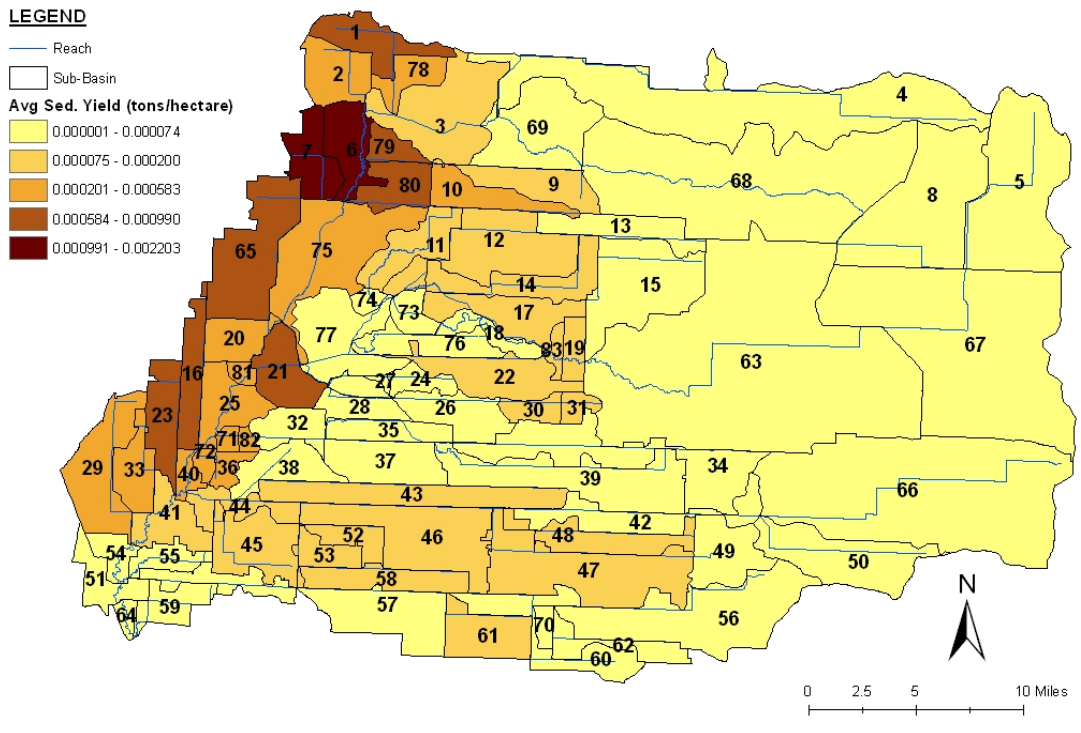
By: Corey Hanson, Water Quality Coordinator
 For: April 8th, 2010
 Red Lake Watershed District Board Meeting

Thief River Watershed Sediment Investigation

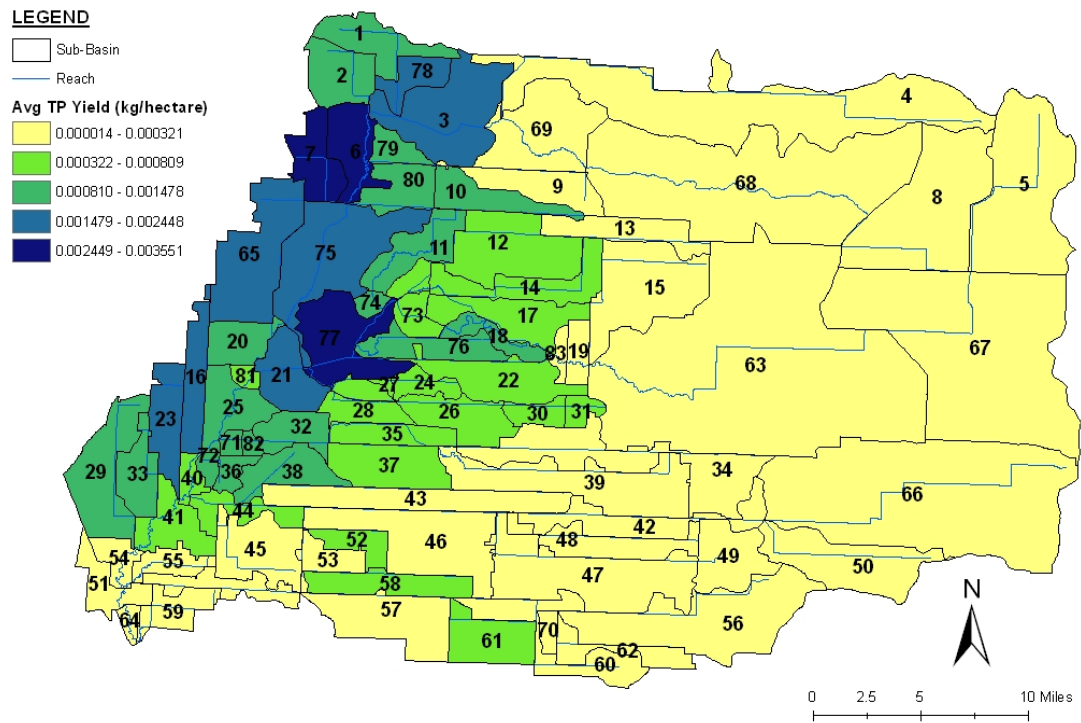
- Worked on compiling, correcting, and assessing continuous water quality and flow monitoring data.
- Got S.G. 140 data from the USGS.
- Added a lot of information to the final report.
- Developed BMP implementation scenarios for the SWAT model
 - Filter strips targeting streams and ditches (simulate EQIP)
 - Simulate the WHIP program by targeting areas along rivers and ditches for the conversion of cropland into permanent cover.
 - Add temporary storage throughout the watershed by installing side water inlets along all ditches.
 - We could possibly add another scenario, if the budget allows it; most likely one that involves application of temporary storage based upon the locations of restorable wetlands in the watershed.
- Houston Engineering continued making progress on the SWAT model. They have:
 - Completed preliminary model calibration for discharge.
 - Completed model calibrations for sediment.
 - Started working on BMP implementation scenarios.



Modeled Average Sediment Yield (tons/hectare) by Sub-Basin 2003-2008



Modeled Average TP Yield (kg/hectare) by Sub-Basin 2003-2008



Stream Gauging

In March, I spent as much time as I had available on recording water levels during spring runoff and installing HOBO water level loggers where I could. Most of the water level loggers are deployed throughout the Thief River Watershed. I budgeted some time from stream gauging this year and am using that time to collect data for the Thief River monitoring sites while we are in-between projects. The Thief River Watershed Sediment Investigation water level monitoring funds have been spent and we are waiting for the contract to be finalized before we can start the Thief River Watershed Assessment Project.

The only available HOBOS left to install as of the end of March are for two sites on the main channel of the Thief River and the tile drainage monitoring sites. HOBO water level loggers have been installed at:

- Stream gauge 98, Thief River near the Thief Lake Outlet
- X4/Stream Gauge 43, Moose River at CSAH 54.
- 71, Polk County Ditch 2
- B75, Brandt Channel at Hwy 75.
- Barometric pressure logger at B75
- 81, Silver Creek at CR111
- Barometric pressure logger at the Bachand tile monitoring site.
- Stream gauge 41 on Marshall County Ditch 20
- Stream gauge 6 on Ditch 200 downstream of Farmes Pool.
- Stream gauge 156, Thief River at CR 44
- 757, Mud River at Hwy 89 (temporary, high-water installation).
- Stream gauge 160, new flow monitoring site on JD21 at Marshall CR48
- JD30/TR, JD30, north of Thief River Falls.

I was also able to make some flow measurements during the high spring flows.

- S.G. 156 on the Thief River, 2468.2 CFS on 3/18
- S.G. 160 – new site on JD21 at Marshall CR48, 24.1 CFS on 3/30
- B75 – Brandt Channel at Hwy 75, 118.9 CFS on 3/17
- S. G. 41 on Marshall CD20, 1000 CFS on 3/18



Other Notes

- I will need to start a work plan for the Red Lake River watershed-based TMDL and watershed assessment project. The Detroit Lakes MPCA has submitted a request for contract. They may be ready to submit a work plan sometime in the next 3-4 months.
- I have been considering some adjustments to the RLWD long-term monitoring program. I have been considering monitoring site locations in terms of TMDL development and safety. There are some sites that would be bad flow monitoring and load establishing sites because of backwater issues. There also are a couple sites that may have safer alternatives. I will continue to collect field measurements only at the old site for comparison to measurements made at the new site during a “probationary period” of at least one year.
 - Drop TDS (total dissolved solids, \$10/sample). We don’t use it in our analysis. We collect specific conductivity measurements in the field, which essentially give us the same information.
 - Add BOD (biochemical oxygen demand, \$18/sample) at sites that are or may be impaired by low dissolve oxygen.
 - Move the ponded and unsafe Grand Marais Creek monitoring location from site number 826 on Hwy 220 to a free-flowing and safer site named PC19 on CSAH 19, northeast of East Grand Forks.



- Move the ponded Burnham Creek monitoring location from site #799 on 280th Ave SW, southwest of Crookston, to site #89 at CR216, southeast of Fisher.
- Move the ponded Lost River monitoring location (affected by Pine Lake) from site #50-I, the last crossing before Pine Lake, to site #LR10, which is further upstream and will be a better site for measuring flow and establishing TMDLs. Because loads can be determined at this site, long-term RLWD sampling may now resume on the Lost River upstream of Pine Lake.
- Work with the Pennington County SWCD to decide on who will continue to monitor the 1st Street Bridge (reservoir) if one of our agencies begins sampling at the new Greenwood Street Bridge (Red Lake River downstream of the dam).

- As mentioned by a member of the RLWD Overall Advisory Committee, there are a bunch of gullies that have formed along the east slope of the ditch along CSAH 54 near the intersection with CSAH 6.

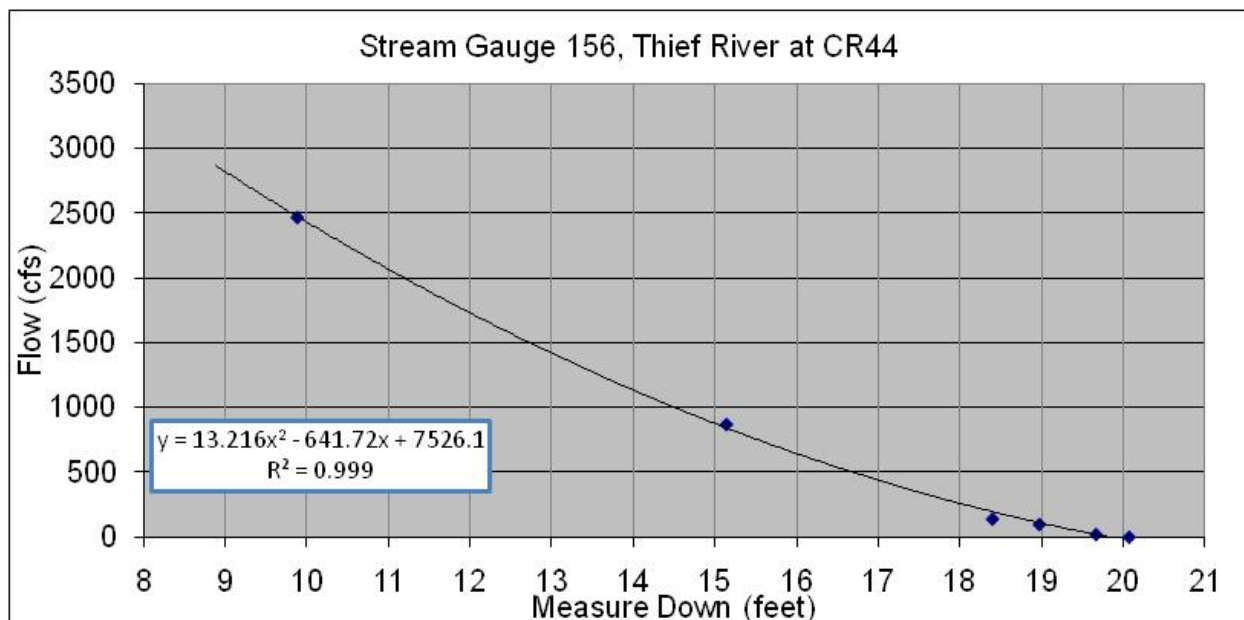


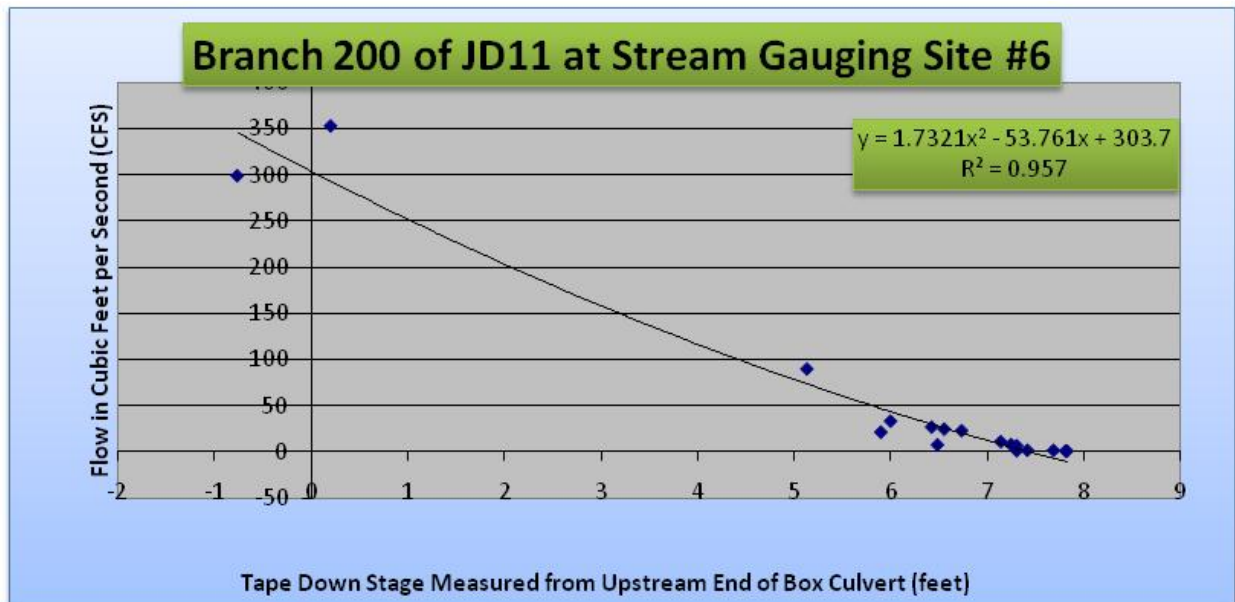
- There also was a significant sediment plume entering the Moose River from the ditch along the east side of CSAH 54 north of Grygla. It sharply contrasted with the water in the river. The following picture was taken on March 16th.



March Meetings and Events

- **March 4, 2010** – Annual Spring Water Quality Monitoring Training Session.
 - Gave presentation on Standard Operating Procedures for water quality monitoring.
- **March 12, 2010** – Teleconference with Houston Engineering to discuss BMP implementation scenarios for the Thief River SWAT modeling project.
- **March 17, 2010** – The 15th Annual River Watch Forum was held at UMC. Jim Blix attended and also was presented with an award.
- **March 19, 2010** - Meeting with Red Lake Department of Natural Resources staff at their office in Red Lake to discuss monitoring plans/needs/methods within the Upper/Lower Red Lakes watershed. I went through a presentation of our monitoring program and plans.
- **March 24, 2010** – RLWD Overall Advisory Committee Meeting, 9:30am, RLWD Office
 - Follow-up: How can we tell if we have a backwater influence at a site? Is the Thief River near Agassiz NWR affected by backwater from the Thief River Falls dam? The influence of the Thief River Falls Reservoir ends downstream of the USGS Gauge. USGS Gauges are located only in areas that are unaffected by backwater. If there is a backwater effect, it shows up in flow measurements that don't fit a flow rating curve (lower than what they should be at a particular elevation. All the RLWD flow measurements on the Thief River from CR 44 upstream to Agassiz NWR fit snugly along each site's rating curve. A site that is influenced by backwater will have a lot messier flow rating curve that has measurements of different rates of flow at a similar elevation. Ditch 200 is an example of a site that is affected by backwater.





- **March 26, 2010** – Red River Basin Monitoring Advisory Committee meeting, 9:30 am, Sand Hill Watershed District.
 - There will be a River Watch Boot Camp class this summer for River Watch teachers. Right now, total cost is an issue. The class’s planners may be going to local watershed districts to see if they will sponsor “scholarships” to cover teachers’ registration fees.
 - RMB EQUIS database for storing laboratory and field measurement data
 - North Star Geographics is developing the database.
 - A laboratory Access database and webforms will be used to input data into a database that is housed on the NSG servers.
 - Users can tap into the database to retrieve historical STORET data
 - The site can be used to generate reports and assessments. Sites can be combined as well. This feature will save people a lot of time.
 - Maps can be generated
 - Data can be downloaded in spreadsheet format.
 - Users will get the chance to complete data reviews and confirm that the data is correct before RMB submits the data to the MPCA for entry into STORET and/or the State’s equivalent.
 - QA/QC checks on the data will be the responsibility of the client.
 - RMB is absorbing the cost of the database.
 - Online tracking of transmittal/chain of custody
 - Duplicate and blank data analysis.
 - You can enter when you want, but there is a greater benefit to users if we enter “as we go.”
 - Data could be entered online, in the field, with 3G/4G connections. There may eventually be an “app” for data entry via a smartphone.
 - This will allow for better, more useful data downloads than what is currently possible from the EPA and MPCA.

- Site names could be an issue; we may have to provide STORET codes on sample chain of custody forms. We will provide RMB with a master list. Not all sites will need to be a part of this public database.
- Queries can select sites by pour point, or by a drawn area.
- Trend assessment
- Assessment against State standards
- Stats
- Alerts for event-based monitoring
- Can set up a live connection between our Access database and RMB's online database.
- Data is considered "provisional" until it is accepted by the respective project manager.
- Users retain "ownership" of the data until they approve its submittal.
- We will have to be diligent about making sure sites are established prior to monitoring.
- This database will add to the usefulness of our QA/QC data; it will be available to all.
- The DNR may be monitoring flow on Grand Marais Creek at the Hwy 220 crossing.
- The Red Lake Nation is establishing their own water quality standards. They will mostly be identical to the State of Minnesota's standards. There will be more stringent standards for cultural and spiritual waters.
- The DNR will be monitoring stage and flow at 3 to 8 intermediate sites in each major subwatershed.
- The DNR still has plans to do flow monitoring at sites within the Thief River watershed. The timing is dependent upon the State contracts people.
- Jim Ziegler provided maps that show the MPCA's 10X intensive monitoring schedule. The map is included at the end of this report.
- **March 29, 2010 - Red River Basin Water Quality Team, Detroit Lakes MPCA office. "Effective Meetings for Water Managers"**
 - Definitions of "stakeholders"
 - Actors who control resources needed to implement a desired change.
 - Those actors who can mobilize resources to block that desired change.
 - "Maintenance" vs. "Task" functions
 - Maintenance = behaviors that support cohesion and relationships
 - Task = steps toward the goal
 - Difficult to accomplish the "task" without "maintenance"
 - What are some challenges encountered when leading meetings? What are characteristics of a bad meeting?
 - Disruption, contentiousness
 - Ramblers
 - Reading nonverbal communication
 - People who only want to focus on their own agendas
 - Too much silence
 - Poor attendance

- Circular, pointless discussion
- How to address peoples' fears.
- Resolving arguments
- Keeping people interested.
- What are some characteristics of a good group meeting?
 - Positive and constructive feedback
 - Good attendance
 - Knowledgeable leaders
 - Prepared leaders
 - Active listening
 - Good moderator
 - The meeting has a clear agenda and stays on track.
 - The leader understands the difference between valuable conversation and what isn't.
 - Attendees understand what is expected of them.
 - The meeting's purpose is clear to all members.
 - Everyone talks, contributes, is respected, and is understood.
 - Group's norms are adhered to pretty well
 - Pertinent questions are asked and members are generally satisfied with the leader's and other's responses.
 - Disagreement and conflict are handled relatively well, maintaining mutual respect. Solutions are found or parties may agree to disagree. "I understand where you are coming from..."
 - Group stays on task but also has fun.
 - Group is productive and cohesive, meets goals and hangs together well
 - Leader role and functions
 - State and follow agenda. Keep group on track, staying within an established time period.
 - Be directive as needed, yet respectful.
 - Try for a mix of task-focus along with some humor/lightness.
 - Dissolves tension, reduces the potential for difficult disagreements.
 - Establish group/meeting norms early on. Strive to keep members within the norms.
 - Stress importance of member's input and their ongoing participation as **equal partners**
 - Seek and facilitate member's active participation and input as partners for TMDL and watershed planning.
 - Encourage questions
 - Remain objective and non-defensive
 - Use active listening skills, especially paraphrasing, to help you and rest of group understand member communications --as needed or important
 - Ask open-ended and leading questions, etc.

- Though you are the leader/director for this meeting, show by speech and behavior that you indeed view stakeholders as equal partners. Communicate respect and appreciation.
 - Good leaders typically both challenge and support, e.g., challenge members to do certain actions for good group process and goal attainment AND positively support them in doing so.
 - Be as prepared as possible and familiar with the information. Prepare for questions that may come up.
- It's OK to say "I don't know"
- Group/meeting norms
 - Established early in first meeting
 - Norms = guides/rules for members conduct that aid constructive group communications, relationships and productivity. = "This is how we will operate in our meetings"
 - Leader proposes, seeks brief discussion and large majority agreement; members may also propose
 - Don't take too long on this
 - Can be directive about which norms if necessary, but have an appropriate rationale that you're pretty sure members will buy.
 - Leader reminds members when norms are not followed. Brings group back to behaviors within the norms.
 - Examples of Useful norms:
 - Based on group research and experience
 - We agree to participate and contribute to discussion important for purposes of the meeting.
 - We agree to try to listen well to each other.
 - We will ask questions when we're unclear.
 - We agree to show respect for each other, though we might disagree.
 - If we conflict we'll try to find solutions, or agree to disagree.
 - We agree to stay within the boundary of the topic of this meeting.
- Skills and role playing
 - Paraphrasing - Restating what member said in your own words. A: "total P, chlorophyll a, and nitrate-nitrogen were well above eco-region values." B: "tests showed water quality was quite poor for the northern hardwoods region". May negotiate to agreement-"Is this what you said/meant?" Paraphrase to summarize key points and decisions.
 - Perception checking - restating the apparent feeling content -"you felt frustrated/disturbed/sad/mad/happy that..? Generally not used in task oriented meetings unless it seems important for supporting the person or getting clearer on what the member's point really is. Usually elicits more explanation.
 - Open-ended questions, leading questions or directive statements: "John, could you explain that more?", "elaborate on that..." "Amplify a bit..?", "and then what.."? "Could you give an example, Peg?"- or "give us an example, OK ?..". "You mean that the pollution is bad?", "we need to stop on this due to limited time", "OK, time out!", "Let's take a break" .

- At the beginning of the meeting, have people write down (anonymously) why they are at the meeting.
- Don't feel bad about excluding/ejecting "shock jocks" from meetings. These are people with disruptive behavior/comments.
- Communicate your respect and appreciation for the group's time, attention, and participation.
- Ask people what they would like to know more about.
- State led vs. local led meetings. Some people thought that the local person may be more acceptable to the audience and more knowledgeable about local issues, but the State employees still need to be heavily involved. It's their program.
- Education goes both ways. We also need to listen. We can learn from people's experiences and knowledge of the area in which they live.
- Dispel hearsay with facts.
- Let people know how the government is helping us (money coming into the area).
- Include owners (long-term point of view) and renters (short-term POV).
- How do you deal with cantankerous people?
 - Listen to them; see what they have to say about the history of the area and changes that have occurred over the years.
 - Know who your audience is.
 - Disagree agreeably
 - Take control, yet be courteous.
- How to end a meeting
 - End on time
 - Wrap up summary
 - Appreciation
 - Preliminary wrap-it-up statement ("we have five more minutes").
 - Ask for contributions from people who haven't spoken much yet.
 - Plan future meeting(s).
 - Action items and assignments.
 - Ask for any last questions.
 - Go around the table and ask how well they thought the meeting went.
 - What still needs to be covered?
 - What are the next steps?

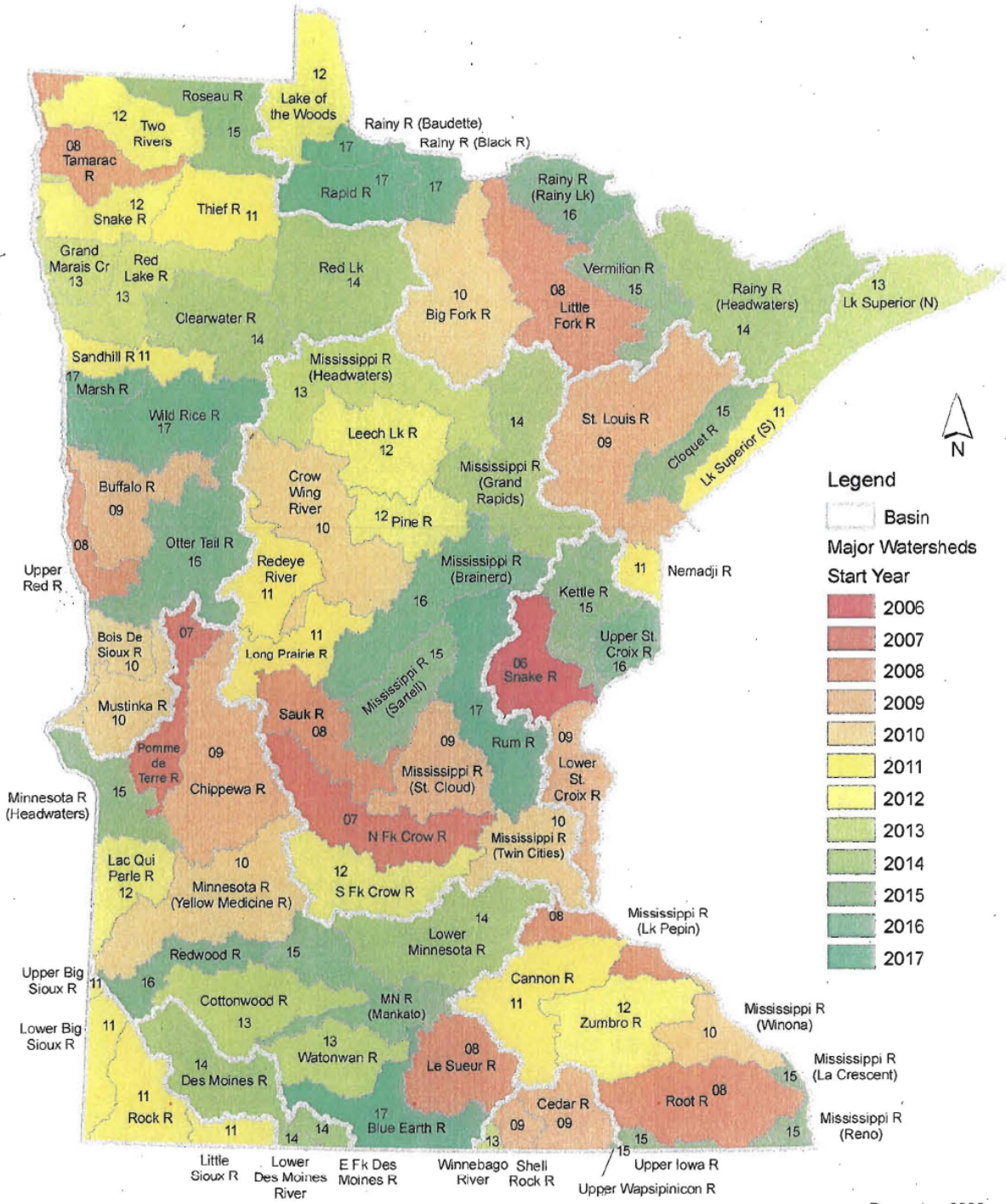
Plans for April 2010

- Revise the Draft Poplar River Dissolved Oxygen TMDL report.
- First round of district monitoring.
- Start working on a work plan for the Red Lake River watershed-based TMDL project.
- Finish installing HOBO water level loggers
- Begin installing continuous water quality equipment if we can get the Thief River Watershed Assessment Project contract finalized. Sampling for that project should also start as soon as possible. Ideally, we should start monitoring sometime before the end of April to achieve data goals.

Future Meetings/Events

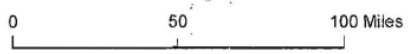
- **April 1, 2010** - Target date for the completion of new drafts of the Silver Creek and Poplar River TMDLs
- **April 26, 2010** – Red River Basin Water Quality Team open house meeting in Crookston. 3pm – 6pm.
- **April 28, 2010** - Envirothon
- **April 30, 2010** – Target date for completion of the Thief River SWAT model.
- **May 17, 2010** – Red River Basin Water Quality Team meeting, 10am, RLWD office
 - “Psychology of Sustainable Behavior”
- **May 20, 2010** - Grand Marais Creek Project Team and TMDL Stakeholders meeting, 9:30 AM, RLWD
- **Spring 2010** – There will be a meeting with the MPCA Bio-Monitoring Unit to plan the 2011 monitoring for the Thief River and Sand Hill River watersheds prior to the start of the 2010 field season. We will decide on the number of sites, locations of sites, frequency of monitoring, and which parameters to monitor. So, we will then be able to use this information to apply for Surface Water Assessment Grant Applications that will pay for the monitoring during 2011 and 2012.
- **May 2010** – Reconnaissance of the Thief River Watershed with Dave Friedl of the DNR to prepare for the stream channel stability assessment.
- **June 2010** – The public review and comment period for the Silver Creek and Poplar River TMDLs should begin sometime this month.
- **June 28, 2010** - Red River Basin Water Quality Team meeting, 10 am, Detroit Lakes MPCA office - “Presenting Technical Information”
- **July 2010** – Construction on a stormwater retention pond in Clearbrook could start
- **August 2010** – Stream channel stability assessment in the Thief River watershed. Two weeks of work will be needed to accomplish this task.
- **August 23, 2010** - Red River Basin Water Quality Team meeting, 10am, RLWD office
 - “Stressor Identification for Watersheds”
- **August 31, 2010** – Completion of the Thief River Watershed Sediment Investigation
- **September 27, 2010** - Red River Basin Water Quality Team meeting, 10am – 2pm, Detroit Lakes MPCA, 1st floor conference room.
- **September 30, 2010** – Target approval date for Silver Creek and Poplar River TMDLs
- **November 22, 2010** - Red River Basin Water Quality Team meeting, 10am, RLWD office - “Presenting Watershed Information”

Intensive Watershed Monitoring



Legend

- Basin
- Major Watersheds
- Start Year**
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017



December 2009

